

Claims

- [c1] 1.A rotating electrical machine comprising a stator having a circular core of a magnetic material and a plurality of magnetic pole teeth extending radially from said circular core, a rotor juxtaposed to the terminal ends of said magnetic pole teeth and spaced from said circular core, each of said magnetic pole teeth defining a core and an enlargement at said terminal ends of said cores adjacent pole teeth defining slots having a mouth formed between adjacent of said enlargements, an insulator covering said cores of said magnetic pole teeth, coil windings wound around said cores of said magnetic pole teeth with said insulator being interposed there between, each of said insulators having a circumferential length that decreases in an axial direction along their length.
- [c2] 2.A rotating electrical machine as set forth in claim 1 wherein the circumferential length of the insulators is changed by a portion formed on a face of the insulator.
- [c3] 3.A rotating electrical machine as set forth in claim 2 wherein the portion of the insulator is formed on a face thereof that does not extend into the slot on either side of the respective pole tooth.
- [c4] 4.A rotating electrical machine as set forth in claim 2 wherein the portion is generally rectangular with the circumferential length being changed by providing a tapering chamfer on opposite sides thereof.
- [c5] 5.A rotating electrical machine as set forth in claim 4 wherein the portion of the insulator is formed on a face thereof that does not extend into the slot on either side of the respective pole tooth.
- [c6] 6.A rotating electrical machine as set forth in claim 5 wherein the chamfered sides are the sides adjacent the slots.
- [c7] 7.A rotating electrical machine as set forth in claim 2 wherein the portion is formed by a separate member affixed to the insulator.
- [c8] 8.A rotating electrical machine as set forth in claim 7 wherein the separate member is fixed to a face of the insulator that does not extend into the slot on

either side of the respective pole tooth.

- [c9] 9.A rotating electrical machine as set forth in claim 8 wherein the separate member is generally rectangular with the circumferential length being changed by providing a tapering chamfer on opposite sides thereof.
- [c10] 10.A rotating electrical machine as set forth in claim 9 wherein the chamfered sides are the sides adjacent the slots.
- [c11] 11.A rotating electrical machine as set forth in claim 1 wherein coil windings on adjacent cores are connected by cross over wires.
- [c12] 12.A rotating electrical machine as set forth in claim 11 wherein the cross over wires extend across the slots.
- [c13] 13.A method of winding the coils of a rotating electrical machine comprising providing a circular core of magnetic material with a plurality of magnetic pole teeth extending radially from the circular core, each of the magnetic pole teeth defining a core and slots formed there between, each of the slots defines a mouth that is formed between adjacent outer ends of the cores, positioning a threading needle having an opening through which the wire for the winding of the coils is fed into proximity to one of the mouths, moving the needle opening in a path around one of the pole teeth and at one side of the slot without moving the needle in any substantial distance along the length of the one pole tooth to form a first winding, continuing the movement of the needle opening in a path around the one of the pole teeth at the one side of the slot without moving the needle in any substantial distance along the length of the one pole tooth to form succeeding windings the circumferential length of the pole teeth decreasing in an axial direction along their length, and holding the wire end at the end of the pole tooth spaced from the needle so that each successive winding forces the previous winding along the pole tooth toward the circular core without requiring movement of the needle in any substantial distance along the length of the one pole tooth so that the needle is not moved any substantial distance into the slot.